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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/988,108	11/19/2001	Tatsuro Yamazaki	35.C15955	8061

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EXAMINER

AWAD, AMR A

ART UNIT PAPER NUMBER

2675

DATE MAILED: 05/14/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/988,108

Applicant(s)

YAMAZAKI ET AL.

Examiner

Amr Awad

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9, 11-14 and 16-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-9 and 12-14 is/are allowed.
- 6) ☒ Claim(s) 11 and 16-19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 11, and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (US patent NO. 5,734,361 provided by the Applicant; hereinafter referred to as Suzuki) in view of Uenuma (US patent NO. 6,091,381).

As to independent claim 11, Suzuki (figures 4 and 8) teaches a display apparatus (201) and a method for driving the display comprising:

Electron emission elements (cold cathode elements) aligned in a matrix on a substrate and driven by column lines and row lines (col. 10, lines 39-44);

A column line drive unit for driving the column lines (Dy1-Dyn) in a pulse width modulation manner by applying to each column line one of pulses, which have different pulse widths respectively corresponding to gradation levels of a luminance signal to be displayed in the display apparatus (col. 13, lines 5-11);

A row line drive unit (202) for sequentially driving the row lines; first means for defining a plurality of blocks each of which includes at least one column line by dividing the column lines and a plurality of gradation steps each of which includes at least one gradation level by dividing the gradation levels, and detecting a block driving status

which indicates how the gradation levels in each of the gradation steps are applied to the columns in each block (col. 11, lines 4-17) and,

Calculating a voltage drop due to a resistance in the row line and the current flow by the approximating pulses on the column lines during each of the defined periods on the basis of the detected block driving status, determining a block voltage drop for each block estimated from the voltage drops over the plurality of periods (col. 24, lines 24-47).

Suzuki does not expressly teach modifying the luminance signal according to the calculated voltage drop so that for the same luminance data, a width of a voltage pulse applied to a column line is longer as the column line is aligned more distant from a terminal connected to the row line drive unit.

However, Uenuma (figures 1, 4 and 6) teaches a display device capable of realizing step-less gradation to improve the quality of an image displayed (abstract). Uenuma teaches means for defining a plurality of periods within one horizontal interval, the width of approximating pulses (col. 4, line 32 through col. 5, line 4), wherein the luminance of the device is modified based on the calculated voltage drop (for that, Uenuma shows that luminance of the organic EL display section 22 is proportional to the anode power. Thus, supposing that the anode voltage is rendered constant, the Luminance is proportional to the anode current, which is substantially equal to the cathode current) (col. 9, lines 16-21).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the teaching of Uenuma having the

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luminance varies based on the voltage power applied to the device, to be incorporated to Suzuki's device so as motivated by Uenuma, to have Luminance of the organic EL display section 22 is proportional to the anode power. Thus, supposing that the anode voltage is rendered constant, the luminance is proportional to the anode current, which is substantially equal to the cathode current (col. 1, lines 36-43).

As to claim 16, the claim is substantially similar to independent claim 11 and would be analyzed as previously discussed with respect to claim 11.

As to claims 17-18, Suzuki teaches c Calculating a voltage drop due to a resistance in the row line and the current flow by the approximating pulses on the column lines during each of the defined periods on the basis of the detected block driving status, determining a block voltage drop for each block estimated from the voltage drops over the plurality of periods (col. 24, lines 24-47).

As to 19, Suzuki teaches having a correction data for each column through a linear interpolation and applying the correction data to the column 30, lines 47-62).

Allowable Subject Matter

3. Claims 1-9 and 12-14 are allowed.

Response to Arguments

4. Applicant's arguments filed 12/12/2003 have been fully considered but they are not persuasive.

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With respect to claims 1-9 and 12-14, the argument is moot in view of indication the allowance of the claims. With respect to independent claims 11 and the 16, examiner believes that the combination cited in the rejection above fairly reads on the invention as claimed in both claims 11 and 16. Applicant (first paragraph of page 13) argued that Suzuki makes no teaching or suggestion that a driving pulse is applied to each column wiring according to the correction image data subjected to the voltage drop correction, and that Uenuma does not remedy what is missing from Suzuki. Examiner respectfully disagrees. Claim 11 does not include any limitations that recite, "a driving pulse is applied to each column wiring according to the correction image data subjected to the voltage drop correction". Furthermore, as discussed in the rejection above, Uenuma teaches means for defining a plurality of periods within one horizontal interval, the width of approximating pulses (col. 4, line 32 through col. 5, line 4), wherein the luminance of the device is modified based on the calculated voltage drop (for that, Uenuma shows that luminance of the organic EL display section 22 is proportional to the anode power. Thus, supposing that the anode voltage is rendered constant, the Luminance is proportional to the anode current, which is substantially equal to the cathode current) (col. 9, lines 16-21). Examiner believes that such limitation fairly reads on the limitation as claimed.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yamazaki et al. (US patent NO. 6,215,466) teaches a gradation display operation using a pulse width modulation.

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amr Awad whose telephone number is (703)308-8485. The examiner can normally be reached on Monday-Friday, between 9:00AM to 5:30PM.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Amr Ahmed Anwar
5-12-2004

A.A